

## REMARKS

In the office action mailed November 19, 2005, Claims 1-60 were pending in the present application, with Claims 29-46 and 55-60 being withdrawn. Claims 1-28 and 47-54 were rejected under various grounds. Specifically, Claims 1-8, 14 and 16 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 4,925,633 (hereinafter "Doyle"). Claims 1-8, 14 and 16 were also rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 6,132,692 (hereinafter "Alix"). Additionally, Claims 1-2, 7-8, 14 and 16 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 6,395,237 (hereinafter "Wietzke"). The remaining Claims 3-6, 9-15, 17-28, and 47-54 were also rejected under 35 U.S.C. § 103(a) as obvious over Wietzke. Each rejection will be addressed in turn below. Claims 1, 17 and 47 are amended by the present amendment; therefore, Claims 1-28 and 47-54 remain pending for consideration.

### *Support for Amendment*

Support for the addition of the phrase "said wet scrubber being a flue gas desulphurization unit" can be found in the originally filed specification at page 7, lines 8-10. No new matter is added by this amendment. This amendment is made merely for purposes of clarification and Applicant contends that such is not a narrowing amendment and no limitation on the scope is intended thereby as conventional industry usage of "wet scrubber" refers to flue gas desulphurization units.

### *Rejection under 35 U.S.C. § 102(b) based on Doyle*

Claims 1-8, 14, and 16 were rejected as allegedly anticipated by Doyle. Claim 1 from which all of these claims depend is drawn toward a circulating fluidized bed having a wet scrubber operatively connected thereto. At this point the Applicant would like to emphasize that circulating

fluidized beds (CFB) and pulverized coal (PC) reactors or “coal fired boilers” are distinctly different devices which involve very different construction and operation. For example, a PC reactor operates using a direct flame where extremely fine coal particulates and air are mixed and combusted to form a flame similar to a torch. Conversely, CFB reactors operate at a much lower temperature (e.g. ~1600 °F versus ~2500-3500 °F) and utilize a fluidization medium such as sand in an amount up to about 97-98% with no identifiable flame profile. The term “coal fired boiler” immediately and clearly characterizes a reactor as a PC reactor or in some cases an older stoker reactor.

Present Claim 1 specifically claims “a coal fired circulating fluidized bed reactor.” In contrast, Doyle teaches a PC reactor. In particular, Doyle refers to this device in FIG. 1 and FIG. 2 as a “fossil fuel fired boiler” or “coal-fired boiler.” The device illustrated in FIGs. 1 and 2 is clearly a PC reactor. For example, the illustration is a standard pictorial representation of a boiler 10 consistent with illustrations of PC reactors. Therefore, FIG. 1 and col. 1, lines 10-15 fail to teach or suggest a CFB as claimed. Further, a CFB by definition includes a recirculation stream which is neither illustrated nor taught in the Doyle reference. Therefore, Applicant respectfully submits that the Doyle reference does not teach the claimed invention and requests that the rejections based thereon be withdrawn.

*Rejection under 35 U.S.C. § 102(b) based on Axil*

Claims 1-8, 14, and 16 were also rejected as allegedly anticipated by Axil. The Alix reference is even more remote from teaching or suggesting CFB reactors than Doyle. Specifically, Alix is drawn toward a system for treatment of emissions from “combustion of a fossil fuel boiler.” Col. 1, lines 16-17. As with the Doyle reference, the phrase “fossil fuel boiler” conventionally refers

to a PC type reactor. There is no specific teaching of types of boilers which are contemplated; however, the background section mentions the use of “special burners to cool the combustion temperature” which is clearly a PC burner. Col. 1, lines 40-41. Conventional CFB reactors do not utilize coal combustion burners at all and are therefore not disclosed by Alix. The Alix reference is completely lacking any teaching of a circulating fluidized bed reactor which is a distinct and special type of coal fired reactor. Therefore, Applicant respectfully submits that the Alix reference does not teach the claimed invention and requests that the rejections based thereon be withdrawn.

*Rejection under 35 U.S.C. § 102(b) based on Wietzke*

Claims 1-2, 7-8, 14, and 16 were also rejected as allegedly anticipated by Wietzke. Unlike each of the Doyle and Alix references, Wietzke does teach CFB reactors. However, Wietzke fails to teach or suggest using a wet scrubber. Further, the amended phrase in Claim 1, from which Claims 2, 7-8, 14, and 16 all depend, specifically defines the wet scrubber as a flue gas desulphurization unit.

According to conventional industry usage and an express definition in the specification, a wet scrubber is a “flue gas desulfurization unit” which involves a liquid for removing SO<sub>2</sub>. Specifically, “in context of the present invention, the use of the terms “wet scrubber” and “dry scrubber” refer to flue gas desulphurization units rather than primary particulate removal.” See page 7, lines 6-13 of the originally filed specification. The term “wet scrubber” is explicitly defined in the specification and is consistent with common usage in the coal and energy production industry. Although the Applicant maintains this position, the added phrase makes this distinction explicit. Thus, this

amendment is not a narrowing amendment and no concession of scope of equivalents with respect to wet desulphurization scrubbers should be applied.

In contrast to the claimed invention, the Wietzke reference teaches, among other components, using an SCR (selective catalytic reduction) unit 150. It is notoriously well known that SCR units are used for removal of NO<sub>x</sub> and not for SO<sub>2</sub> treatment. Further, Wietzke states that in “SNCR or SCR systems, NO<sub>x</sub> is reduced to nitrogen (N<sub>2</sub>) and water (H<sub>2</sub>O) through a series of reactions.” Col. 1, lines 30-32. An SCR is not a wet scrubber in accordance with the Applicant’s express definition and the disclosure of Wietzke, and is consistent with common usage within the coal and energy production industry. Therefore, Wietzke fails to teach each and every element of the claimed invention. Applicant respectfully requests the rejections based on Wietzke be withdrawn.

**Rejection Under 35 U.S.C. § 103(a)**

Claims 3-6, 9-15, 17-28, and 47-54 were rejected as allegedly obvious over Weitzke. Applicant respectfully submits that Claims 3-6, 9-15, 17-28 and 47-54 are patentable over the cited references for the same reasons set forth above, and requests that the rejections be withdrawn. Specifically, Weitzke fails to teach or suggest a wet scrubber since an SCR is not a wet scrubber. More specifically, one skilled in the art would not find it obvious to substitute a NO<sub>x</sub> reduction unit such as an SCR for a SO<sub>x</sub> reduction unit such as a wet scrubber. These units are specifically and carefully designed to treat flue gas for removal of different components.

Applicant contends that Weitzke fails to make a *prima facie* case of obviousness in that the cited reference fails to teach or suggest all of the claim limitations of Applicant’s invention.

Accordingly, Applicant respectfully requests that the rejections be withdrawn and the claims be passed to issue.

### CONCLUSION

Applicant believes that Claims 1-28 and 47-54 present allowable subject matter and allowance is respectfully requested. If any impediment to the entry of this Amendment allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Mr. Erik Ericksen, or in his absence the undersigned, at (801) 566-6633, so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 20-0100.

Dated this 9<sup>th</sup> day of February, 2006.

Respectfully submitted,

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